[4910-13-U]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2005-22594; Directorate Identifier 2005-NE-28-AD; Amendment 39-14659; AD 2006-13-06]

RIN 2120-AA64

Airworthiness Directives; Rolls-Royce Corporation (formerly Allison Engine Company, Allison Gas Turbine Division, and Detroit Diesel Allison) 250-B and 250–C Series Turboprop and Turboshaft Engines

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for Rolls-Royce Corporation 250-B and 250–C series turboprop and turboshaft engines with certain part numbers (P/Ns) of gas producer rotor assembly tie bolts manufactured by EXTEX Ltd., Pacific Sky Supply Inc., Rolls-Royce Corporation (RRC), and Superior Air Parts Inc. This AD requires operators to remove from service affected gas producer rotor assembly tie bolts, and install serviceable tie bolts. This AD results from eleven reports of RRC tie bolt failure due to high cycle fatigue. We are issuing this AD to prevent tie bolt failure that could cause loss of engine power, resulting in a first stage turbine wheel overspeed and an uncontained engine failure.

DATES: This AD becomes effective [insert date 35 days after date of publication in the FEDERAL REGISTER].

ADDRESSES:

You may examine the AD docket on the Internet at http://dms.dot.gov or in Room PL-401 on the plaza level of the Nassif Building, 400 Seventh Street, SW., Washington, DC.

FOR FURTHER INFORMATION CONTACT:

- Robert Baitoo, Aerospace Engineer, Los Angeles Aircraft Certification Office, FAA, Transport Airplane Directorate, 3960 Paramount Blvd., Lakewood, CA 90712-4137; telephone: (562) 627-5245, fax: (562) 627-5210, for questions about, EXTEX Ltd., or Pacific Sky Supply Inc. gas producer rotor assembly tie bolts.
- John Tallarovic, Aerospace Engineer, Chicago Aircraft Certification Office, FAA, 2300 East Devon Avenue, Des Plaines, IL 60018-4696; telephone (847) 294-8180; fax (847) 294-7834, for questions about RRC gas producer rotor assembly tie bolts.
- Jurgen Priester, Aerospace Engineer, Rotorcraft Directorate, FAA, 2601 Meacham Blvd., Fort Worth, Texas, 76137-4298, telephone (817) 222-5159, fax (817) 222-5785, for questions about Superior Air Parts Inc. gas producer rotor assembly tie bolts.

SUPPLEMENTARY INFORMATION: The FAA proposed to amend 14 CFR part 39 with a proposed AD. The proposed AD applies to Rolls-Royce Corporation 250-B and 250–C series turboprop and turboshaft engines with certain P/Ns of gas producer rotor assembly tie bolts manufactured by EXTEX Ltd., Pacific Sky Supply Inc., RRC, and

Superior Air Parts Inc. We published the proposed AD in the *Federal Register* on November 10, 2005 (70 FR 68381). That action proposed to require operators to remove from service affected gas producer rotor assembly tie bolts.

Examining the AD Docket

You may examine the docket that contains the AD, any comments received, and any final disposition in person at the Docket Management Facility Docket Office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The Docket Office (telephone (800) 647-5227) is located on the plaza level of the Department of Transportation Nassif Building at the street address stated in ADDRESSES. Comments will be available in the AD docket shortly after the DMS receives them.

Comments

We provided the public the opportunity to participate in the development of this AD. We have considered the comments received.

Request to Exclude Parts Manufacturer Approval (PMA) Tie Bolts

One commenter requests that the PMA tie bolts be excluded from the AD action, because there are no reported failures of the PMA tie bolts. Also, the commenter states that there are numerous opportunities for significant design differences between PMA tie bolts approved under Test and Computation, and the original equipment manufacturer (OEM) tie bolts.

We do not agree. Although there are no reported failures of PMA parts, the tie bolts from all four manufacturers are essentially the same and share many common features. The fact that there are no reported failures of PMA parts is statistically insignificant since the PMA parts only account for several hundred of the approximately

5,000 tie bolts in service, and there have been only 11 failures. Additionally, failures of a specific part number are not a prerequisite for declaring an unsafe condition. A failure mode's net result on the product (in this case loss of engine power, first stage turbine wheel overspeed, and an uncontained engine failure); the assumed or predicted rate of occurrence, and other factors linking affected or suspect parts to failed parts, help make that decision. While minor differences may exist between the OEM tie bolts and the PMA tie bolts, the commenter gave no justification as to how those unnamed differences should exempt the PMA parts from this AD action. Finally, we did compare design data as part of the decision making process.

Request to Withdraw the Proposed AD

The same commenter requests that we withdraw the proposed AD and not re-issue it until we are prepared to fully disclose what design features caused the tie bolt failures. The commenter further states that since the tie bolt requires a sustained preload for safe operation, one would expect that maintenance or assembly practices are more likely contributors, as the likelihood of high-cycle-fatigue failures increases if the preload is not established or maintained correctly.

We do not agree. While they may have minor differences between them, the tie bolts from all four manufacturers are essentially the same and share many common features. The commenter provides no data to support the assertion that maintenance or assembly practices are more likely contributors to the high-cycle-fatigue failures. Analysis of the failures did not find any assembly problems. We did not change the AD.

Request to Provide Instructions on How to Make the Engine Airworthy

The same commenter requests that we provide instructions on how to make the engine airworthy. The commenter states that the AD action essentially specifies an action of "remove, and do not reinstall, tie bolt part numbers listed in Table 1." The commenter assumes there will be instructions provided on how to make the engine airworthy.

We partially agree. While there is no way to make the removed tie bolts airworthy, we reworded the AD to include a statement that the removed tie bolts be replaced with tie bolts with P/Ns that are not listed in Table 1 of the AD.

Conclusion

We have carefully reviewed the available data, including the comments received, and determined that air safety and the public interest require adopting the AD with the changes described previously. We have determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

Costs of Compliance

About 700 RRC 250-B and 250–C series turboprop and turboshaft engines with affected P/Ns of gas producer rotor assembly tie bolts manufactured by EXTEX Ltd., Pacific Sky Supply Inc., Rolls-Royce Corporation (RRC), and Superior Air Parts Inc., installed on aircraft of U.S. registry, will be affected by this AD. We also estimate that it will take about 20 workhours per engine to perform the actions, and that the average labor rate is $65 per workhour. Required parts will cost about $421 per engine. Based on these figures, we estimate the total cost of the AD to U.S. operators to be $1,204,700.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We have determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

(1) Is not a "significant regulatory action" under Executive Order 12866;

(2) Is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and

(3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared a summary of the costs to comply with this AD and placed it in the AD Docket. You may get a copy of this summary at the address listed under ADDRESSES.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Safety.

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the Federal Aviation Administration amends 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive: 2006-13-06 **Rolls-Royce Corporation (formerly Allison Engine Company, Allison Gas Turbine Division, and Detroit Diesel Allison):** Amendment 39-14659. Docket No. FAA-2005-22594; Directorate Identifier 2005-NE-28-AD.

Effective Date

(a) This airworthiness directive (AD) becomes effective [insert date 35 days after date of publication in the FEDERAL REGISTER].

Affected ADs

(b) None.

Applicability

(c) This AD applies to Rolls-Royce Corporation (formerly Allison Engine Company, Allison Gas Turbine Division, and Detroit Diesel Allison) 250-B17, -B17B, -B17C, -B17D, -B17E, -B17F, -B17F/1, -B17F/2, 250-C18, -C20, -C20B, -C20F, -C20J, -C20R, -C20R/1, -C20R/2, -C20R/4, -C20S, and –C20W series turboprop and turboshaft engines with the gas producer rotor assembly tie bolt part numbers (P/Ns) listed in the following Table 1, installed:

Table 1. Affected Gas Producer Rotor Assembly Tie Bolts

Manufacturer	Affected Part Numbers
EXTEX Ltd. (EXTEX)	A23008020 and E23008020
Rolls-Royce Corporation (RRC)	23008020, 6843388 and 6876991
Superior Air Parts Inc. (SAP)	A23008020
Pacific Sky Supply Inc.	23008020P

These engines are installed on, but not limited to, aircraft in the following Table 2:

Table 2. Applicable Aircraft

Helicopter	Models
Agusta	A109, A109A, A109A II, A109C
Arrow Falcon Exporters	OH-58A+ and OH-58C
Bell Textron	206A, 206B, 206L
Enstrom	TH-28, 480, 480B
Eurocopter France	AS355E, AS355F, AS355F1, AS355F2
Eurocopter Deutschland	BO-105A, BO-105C, BO-105S
FH-1100 Manufacturing Corp.	FH-1100
Garlick	OH-58A+ and OH-58C
McDonnell Douglas Company	369D, 369E, 369F, 369H, 369HM, 369HS, 369HE, 500N
San Joaquin	OH-58A+ and OH-58C
Schweizer	269D
Aircraft	**Models**
B-N Group Ltd.	BN-2T and BN-2T-4R
SIAI Marchetti s.r.l.	SF600, SF600A

Unsafe Condition

(d) This AD results from eleven reports of RRC tie bolt failure due to high-cycle-fatigue. We are issuing this AD to prevent tie bolt failure that could cause loss of engine power, resulting in a first stage turbine wheel overspeed and an uncontained engine failure.

Compliance

(e) You are responsible for having the actions required by this AD performed within the compliance times specified unless the actions have already been done.

Remove Gas Producer Rotor Assembly Tie Bolts

(f) Remove the P/N gas producer rotor assembly tie bolts listed in Table 1 of this AD from service the next time they are disassembled for any reason, or by October 31, 2011, whichever occurs first, and replace with tie bolts with P/Ns that are not listed in Table 1 of this AD.

(g) After the effective date of this AD, do not install any gas producer rotor assembly tie bolt P/Ns listed in Table 1 of this AD in any RRC 250-B and 250–C Series turboprop and turboshaft engines.

Alternative Methods of Compliance

(h) The Manager, Los Angeles Aircraft Certification Office, has the authority to approve alternative methods of compliance for EXTEX, and Pacific Sky Supply Inc. gas producer rotor assembly tie bolts addressed in this AD, if requested, using the procedures found in 14 CFR 39.19. The Manager, Chicago Aircraft Certification Office, has the authority to approve alternative methods of compliance for RRC gas producer rotor assembly tie bolts addressed in this AD, if requested, using the procedures found in 14 CFR 39.19. The Manager, Southwest Special Certification Office, has the authority to approve alternative methods of compliance for SAP gas producer rotor assembly tie bolts addressed in this AD, if requested, using the procedures found in 14 CFR 39.19.

Related Information

(i) RRC Commercial Engine Bulletin (CEB) CEB A-304, CEB A-1371, CEB A-72-4076, TP CEB A-176, TP CEB A-1319, TP CEB A-72-2027, Revision N/C, dated May 23, 2005, and EXTEX Service Bulletin T-090, Revision N/C, dated May 23, 2005, pertain to the subject of this AD.

Issued in Burlington, Massachusetts, on June 14, 2006.

Francis A. Favara,
Manager, Engine and Propeller Directorate,
Aircraft Certification Service.